

AMENDMENT UNDER 37 C.F.R. § 1.114(c)  
U.S. Application No.: 10/573,495

Attorney Docket No.: Q77806

**AMENDMENTS TO THE DRAWINGS**

The attached drawing sheet includes changes to Fig. 2 to designate feather-like protrusions and island-like protrusions.

Attachment: (1) Annotated Sheet (Fig. 2)  
(1) Replacement Sheet (Fig. 2)

**REMARKS**

A corrected Figure 2 is submitted herewith which includes arrows “A” and “B” designating feather-like and island-like protrusions.

Claims 21 and 23 are amended herein and claim 22 is canceled. Support for the Amendment is found, for example, at page 13, lines 13-21 and original claim 3.

No new matter is presented.

**Response to Drawing Objection:**

In response to the objection to the drawings, Fig. 2 has been corrected to include arrows pointing to feather-like protrusions (arrow A) and arrows pointing to island-like protrusions (arrow B).

Review and reconsideration on the merits are requested.

**Response to Claim Rejection under 35 U.S.C. § 112, 2<sup>nd</sup> Paragraph:**

Claims 21 and 23 were rejected under 35 U.S.C. § 112, second paragraph. The Examiner interpreted the term “and/or” in claims 21 and 23 as meaning “or”.

In response, Applicants note that the specification at page 13, lines 13-21 describes that in the case of, e.g., a sintered body, the portion in which the majority of fine protrusions are present is preferably the outer surface and the interior within 10  $\mu\text{m}$  from the outer surface. This passage describes that the fine protrusions overlay an outer surface of the dielectric layer and may also overlay an inner pore surface.

Claims 21 and 23 have been amended herein accordingly, thereby obviating the rejection.

Withdrawal of the foregoing objection under 35 U.S.C. § 112, second paragraph, is respectfully requested.

**Response to Claim Rejection under 35 U.S.C. § 102(b):**

Claims 21, 5-9, 14-19, 23 and 24 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,943,892 to Tsuchiya et al.

Applicants respectfully traverse and request the Examiner to reconsider in view of the following remarks.

Without conceding the merits of the rejection, claim 21 has been amended to incorporate therein the recitation of claim 22 (the fine protrusions have a width of 0.1 to 60 mm), which is not disclosed, taught or suggested by Tsuchiya. For at least this reason, the present invention is not anticipated by Tsuchiya.

Additionally, in the present invention, a semiconductor layer is formed by electrolytic polymerization using an electric conductor as the anode in the present claim 21. On the other hand, Tsuchiya describes that electrolytic polymerization does not take place if the positive lead electrode 2 is used as an electrode for polymerization at column 5, lines 29 to 34. That is, Tsuchiya discloses teachings contrary to those of the present invention.

Also, in Tsuchiya, an electrode 8 is set in contact with the manganese dioxide film layer (in the form of islands or spots) as described at column 5, lines 35 to 48. Therefore, in Tsuchiya, the size of the island or spot of the manganese dioxide film layer is assumed to be big enough so that the contact with the electrode can be confirmed. Consequently, the size of the fine

protrusions of the present invention (0.1 to 60 nm as recited in amended claim 21) is not anticipated by the teachings of Tsuchiya.

Accordingly, withdrawal of the foregoing rejection under 35 U.S.C. § 102(b) is respectfully requested.

**Response to Rejection under 35 U.S.C. § 103(a) of Claims 10, 11, 12, 13 and 22:**

Claims 10, 11, 12, 13 and 22 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Tsuchiya et al in view of U.S. Patent 4,724,053 to Jasne. Jasne was cited as disclosing an organic semiconductor within the scope of claims 10-13.

With regard to claim 22, the Examiner considered that it would have been obvious to determine a workable range for the width of the fine protrusions of Tsuchiya et al through routine experimentation.

Applicants respectfully traverse and request the Examiner to reconsider in view of the following remarks.

Claims 10, 11, 12 and 13 depend directly, or indirectly, from claim 20 or claim 21. Tsuchiya et al does not disclose, teach or suggest all elements of claim 20 or claim 21 and Jasne fails to remedy the deficiencies of Tsuchiya et al.

For example, claim 20 recites that feather-shaped fine protrusions are formed on the dielectric layer before energization having a width of about 0.1 to about 120 nm and claim 21 is amended herein to recite that the fine protrusions have a width of 0.1 to 60 nm. However, neither of Tsuchiya et al nor Jasne discloses, teaches or suggests fine protrusions within the scope of the present invention. As pointed out above, in Tsuchiya et al, an electrode 8 is set in

contact with the manganese dioxide film layer (in the form of islands or spots) as described at column 5, lines 35 to 48. Therefore, in Tsuchiya et al, the size of the island or spot of the manganese dioxide film layer is assumed to be big enough so that the contact with the electrode can be confirmed. Consequently, the size of the fine protrusions of the present invention, i.e., 0.1 to 120 nm as recited in claim 20, much less 0.1 to 60 nm as recited in amended claim 21, is not rendered obvious by Tsuchiya et al. Accordingly, claims 20 and 21 are not rendered obvious by Tsuchiya et al and Jasne fails to remedy the deficiencies of Tsuchiya et al.

Because Tsuchiya et al and Jasne fail to disclose, teach or suggest all elements of claims 20 and 21, it is respectfully submitted that claims 10, 11, 12 and 13 are not rendered obvious by the combination of references for at least the same reasons.

Claim 22 is canceled herein, thereby rendering the rejection of claim 22 moot.

Accordingly, withdrawal of the rejection is respectfully requested.

**Response to Rejection under 35 U.S.C. § 103(a) of Claim 25:**

Claim 25 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Tsuchiya et al in view of U.S. Patent No. 3,299,325 to Wagener et al. Wagener et al was cited as disclosing electrolytically forming fine protrusions on the dielectric layer, citing column 1, lines 38-45.

Applicants respectfully traverse and request the Examiner to reconsider in view of the following remarks.

Claim 25 recites electrolytically forming fine protrusions on the dielectric layer.

Tsuchiya et al does not disclose, teach or suggest electrolytic polymerization for the reasons set forth above. Specifically, Tsuchiya et al describes that electrolytic polymerization does not take

place if the positive lead electrode 2 is used as an electrode for polymerization at column 5, lines 29 to 34. That is, Tsuchiya discloses teachings contrary to those of the present invention. Wagener also fails to teach or suggest this feature of the invention.

In Wagner, the pores of the sintered body are filled with manganese oxide to the extent possible due to the heating step after dipping the porous metal anode in a solution containing high concentrations of manganese nitrate. Therefore, Wagener et al does not disclose, teach or suggest the precipitates of the present invention.

Since neither of Tsuchiya nor Wagener discloses the fine protrusions of the present invention, present claim 25 would not have been obvious to those skilled in the art even from the combination of Tsuchiya and Wagener.

Accordingly, Applicants respectfully request withdrawal of the rejection.

**Response to Rejection under 35 U.S.C. § 103(a) of Claims 20, 5-9, 14-19, 22 and 24:**

Claims 20, 5-9, 14-19, 22 and 24 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Tsuchiya et al. Although acknowledging that Tsuchiya et al fails to teach a feather-shaped protrusion and protrusions having a width of about 0.1 to about 120 nm, the Examiner considered that it would have been obvious to form such feather-shaped protrusions in the absence of evidence to the effect that shape is significant. The Examiner further considered, as above, that the claimed range with respect to width could have been determined through routine experimentation.

Applicants respectfully traverse and request the Examiner to reconsider in view of the following remarks.

As set forth above, in Tsuchiya, an electrode 8 is set in contact with the manganese dioxide film layer (in the form of islands or spots) as described at column 5, lines 35 to 48. Therefore, in Tsuchiya, the size of the island or spot of the manganese dioxide film layer is assumed to be big enough so that the contact with the electrode can be confirmed. Consequently, the size of the fine protrusions of the present invention (0.1 to 120 nm as recited in claim 20) would not have been obvious to one of ordinary skill in the art based on the disclosure of Tsuchiya et al. For at least this reason, claim 20 is not rendered obvious by Tsuchiya et al. Claims 5-9, 14-19 and 24 depend directly from claim 20 or claim 21 (which recites a more narrow range for the size of the fine protrusions of 0.1 to 60 nm) and are patentable at least for the same reasons.

Claim 22 is canceled herein, thereby rendering the rejection as to claim 22 moot.

Accordingly, Applicants respectfully request withdrawal of the rejection.

**Response to Rejection under 35 U.S.C. § 103(a) of Claims 10, 11, 12, 13 and 25:**

Claims 10, 11, 12 and 13 were rejected under 35 U.S.C. § 103(a) as being obvious over Tsuchiya et al in view of Jasne.

Claim 25 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Tsuchiya et al in view of Wagener et al.

These rejections are addressed above. For the reasons set forth above the present claims are not rendered obvious by the cited references, whether taken alone or in combination.

**Response to Objection to the Specification:**

In the Response to Arguments in paragraph 13, the Examiner is of the view that the specification does not distinguish between island-shaped protrusions and feather-shaped protrusions. Consequently, the Examiner interprets island-shaped protrusions to be of any shape, including feather-shaped, and for this reason disagrees that the term "feather-shaped protrusion" defines a structure different from an island-shaped protrusion.

Applicants submit corrected Figure 2 herein, which designates island-shaped protrusions and feather-shaped protrusions of the present invention. Thus, the island-shaped protrusions and feather-shaped protrusions are structurally distinguished from each other.

Accordingly, Applicants respectfully request withdrawal of the objection to the specification.

**Conclusion:**

Withdrawal of all rejections and allowance of claims 5-21 and 23-25 is earnestly solicited.

In the event that the Examiner believes that it may be helpful to advance the prosecution of this application, the Examiner is invited to contact the undersigned at the local Washington, D.C. telephone number indicated below.

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Respectfully submitted,



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